

# epiTRENDS

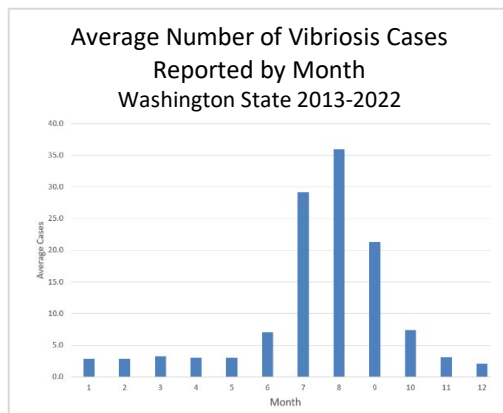
Epidemiology and Public Health Practice in WA

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## Focus on Vibriosis

Vibriosis is an infection with certain pathogenic species of bacteria from the family Vibrionaceae. These organisms are salt-tolerant and are natural inhabitants of both marine (salt water) and estuarine (brackish water) environments worldwide. They thrive at temperatures between 68° to 95° F, and, in the United States, most vibriosis cases occur from May through October.



The most common cause of vibriosis in the United States is consumption of raw or undercooked seafood, especially molluscan bivalves, such as oysters. Bivalves obtain nutrients by filtering the water in which they live (“filter feeding”) and during this process, concentrate naturally occurring *Vibrio* spp. from

the water in their digestive tracts. Elevated water temperature increases the number of naturally occurring *Vibrio* spp., which is why more vibriosis cases are reported during warmer months. In addition, temperature abuse of bivalves after they are harvested (for example, not cooling shellfish quickly enough after harvest and not keeping them cool prior to consumption) can also increase the number of *Vibrio* to pathogenic levels any time of the year but particularly during the summer.

The clinical presentation of infections with *Vibrio* often depends on the species involved. In Washington, *V. parahaemolyticus* is the species which causes most cases of *Vibrio* gastroenteritis. Outer ear infections (otitis externa) or wound infections typically occur with *V. alginolyticus*. Infection with *V. vulnificus* through skin exposure can cause severe soft tissue infections and seafood consumption (especially consumption of shellfish harvested from the Gulf of Mexico) can cause gastroenteritis that leads to sepsis.



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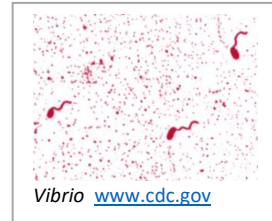
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## Vibriosis in Washington

Vibriosis is a notifiable condition in Washington State. Laboratories are required to submit isolates and specimens associated with a positive result to the Washington State Public Health Laboratories (WAPHL) for confirmation and speciation.

The most common *Vibrio* infection seen in Washington is *Vibrio* gastroenteritis, characterized by watery diarrhea, fever and, occasionally, vomiting. The typical duration of illness is 3 to 7 days. The incubation period is short – 4 hours to 4 days – and most people become ill within 24 hours of exposure. People who have underlying conditions such as liver disease, diabetes, other conditions or treatments that suppress the immune system, or who are of advanced age, are more likely to become symptomatic. The most common species causing *Vibrio* gastroenteritis in Washington State are *V. parahaemolyticus*, non-toxigenic *V. cholerae* (see note below) and *V. fluvialis*.



*Vibrio* cellulitis and ear infections among Washington residents are caused most often by *V. alginolyticus*. The duration and incubation periods are variable for these infections.

*V. vulnificus* is present in Washington State salt water and brackish water and has been identified in oysters during routine surveillance; however, *V. vulnificus* infections are rarely seen in Washington and, to date, none of the reported cases in Washington residents have been associated with consumption of shellfish harvested in the state. Because *V. vulnificus* infections can cause severe infections, clinicians and public health practitioners should remain alert for possible cases.

*V. vulnificus* causes three syndromes:

- Gastroenteritis from consumption of seafood, usually bivalves;
- Soft tissue infections from exposure of skin, (especially pre-existing wounds) to salt water, brackish water, or seafood drippings; and
- Bloodstream infections, which originate with either gastroenteritis or a soft tissue infection.

The incubation period and duration vary by *V. vulnificus* syndrome. The mortality rate is approximately 33% and *V. vulnificus* infection is responsible for 95% of seafood-related deaths in the United States. People with predisposing conditions, especially chronic liver disease, but also including diabetes, other immunocompromising conditions and treatments, and advanced age, are especially susceptible to severe infection.

### A note about *V. cholerae*

As noted above, non-toxigenic *V. cholerae* is the third most common cause of *Vibrio* gastroenteritis in Washington State. These infections are classified as vibriosis and not as the disease “cholera” because non-toxigenic organisms do not produce the cholera toxin that causes profuse, watery “rice water” diarrhea which can lead to life-threatening dehydration and sometimes causes cholera outbreaks and epidemics.

While almost all *V. cholerae* isolates identified in Washington residents are non-toxigenic, WAPHL submits all isolates identified as *V. cholerae* to the Centers for Disease Control and Prevention (CDC) for both cholera toxin testing and serotyping as a precaution.

### Trends

Between 2018 and 2022, an average of 142 cases of vibriosis were reported per year (range: 90-217). This contrasts with the previous 5-year period (2012 to 2016) during which an annual average of 76 cases were reported (62 to 92 cases). Starting in 2017, many commercial labs began transitioning from stool culture-based testing which detect *Vibrio* organisms to stool nucleic acid-based tests which detect *Vibrio* DNA. These nucleic acid tests are more sensitive than stool culture which, at least partly, explains the increase in reported cases.

Washington State Vibriosis Cases	
Year	Cases
2012	67
2013	90
2014	92
2015	68
2016	63
2018	217
2019	159
2020	90
2021	160
2022	104

### Prevention

People with certain underlying conditions (including liver disease, diabetes, and other conditions or treatments that suppress the immune system), people over 65, people who are pregnant, and anyone who would like to avoid *Vibrio* gastroenteritis, should eat only shellfish and seafood cooked to at least 145°F. The Washington State Department of Health Shellfish Program advises that all shellfish recreationally harvested from May through September should be cooked thoroughly to avoid illness due to *Vibrio* bacteria.

To avoid *Vibrio* wound infections (or infection with other organisms naturally present in salt water or brackish water) avoid swimming and other exposure of existing wounds to salt water or brackish water and avoid contact of a wound with drippings from seafood. People who sustain a wound while swimming or preparing seafood should wash the wound well with soap and hot water and then monitor the body area for infection.

### Resources

An in-depth webinar, “Diving Into Vibrio”, is available on the Washington Integrated Food Safety Center of Excellence website: <https://foodsafety.uw.edu/training>

Vibriosis (non-cholera): <https://doh.wa.gov/community-and-environment/shellfish/recreational-shellfish/illnesses/vibriosis>

Handle, Store, and Cook Your Shellfish Properly: <https://doh.wa.gov/community-and-environment/shellfish/recreational-shellfish/illness-prevention/handle-store-and-cook>

Check for beach closures and advisories (or call 1-800-562-5632) before you harvest shellfish in Washington (includes closures for biotoxins): <https://fortress.wa.gov/doh/biotoxin/biotoxin.html>

